

Appl. No. 09/675,020  
Amdt. Dated June 10, 2005  
Reply to Office Action of March 11, 2005

Attorney Docket No. 81841.0161  
Customer No. 26021

REMARKS/ARGUMENTS:

Claims 1 and 22 are amended. Support for the amendments to claims 1 and 22 can be found at page 9, lines 16-22 of the Applicant's specification. Claims 1-25 and 31-32 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §102:

Claims 1-2, 4-15, 19, 22, and 31-32 stand rejected under 35 U.S.C. §102(e) as being anticipated by Moring et al. (U.S. Patent No. 6,159,368). The Applicant respectfully traverses this rejection.

Claim 1, as amended, is as follows:

An assembly for a microarray assay device, comprising:

a microplate having a plurality of discrete array formation areas each formed of a flexible material and activated for immobilization of biorecognition materials, and barriers formed between the array formation areas to restrict fluid cross-flow therebetween; and

a vacuum fixture defining a top surface and an interior chamber connectable to a vacuum source, wherein the microplate is mounted on the top surface of the vacuum fixture so that the array formation areas conform to the top surface of the vacuum fixture, the vacuum fixture further defining a plurality of orifices connected to the interior chamber and opening at the top surface at locations corresponding to the array formation areas when the microplate is mounted on the top surface of the vacuum fixture, wherein each of the orifices connects directly to both the top surface and the interior chamber, wherein each of the orifices is directly below the array formation areas, wherein

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there is no fluid communication between the array formation areas and the orifices.

Claim 1 was amended to clarify that there is no fluid communication between the array formation areas and the orifices. Applicant respectfully submits that Moring cannot anticipate claim 1, because Moring fails to teach that that there is no fluid communication between the array formation areas and the orifices. In contrast, in Moring, liquid flows out of the array formation areas through the orifices into a collection well. (Moring, column 13, lines 32-45; Figure 3)

Moring cannot make instant claim 1 obvious. Moring teaches the opposite of the present invention in that the liquid flows out of the array formation areas through the orifices into a collection well. In Moring, microfiltration plates are used not microplates, as is taught by the present invention. Moring uses an array of "filtration" wells which is completely different than the microplate of the present invention. It is the discovery of the present invention that being able to hold the liquid in the wells allows for micromixing capability. The Applicant's specification, at page 9, lines 16-22, states,

"In addition, the vacuum fixture may be provided with a micromixing capability by connecting the vacuum chamber 34 to a peristaltic pump which generates alternating positive and negative pressures. As shown in Figs. 5(a) and 5(b), the alternating pressures are communicated by the orifice 36 to the space between the surface of the fixture 32 and the bottom of the well 16, causing the flexible bottom portion of the well to be alternately pushed up and pulled down. This creates a micromixing effect to uniformly mix the solution held in the well."

Therefore, without the ability to prevent the liquid from leaving the array formation area, the micromixing effect would not be able to take place. In addition,

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the present invention allows the array formation areas to maintain a high precision flatness. The Applicant's specification, at page 8, line 26-page 9, line 7, states,

"The fixture 32 has an interior chamber 34 connectable to a vacuum source (not shown) via channels 34a, and a plurality of orifices 36 located on the top surface and connected to the interior number. The orifices 36 are located within the depressions 38 in the embodiment of Fig. 3(a), or at locations corresponding to the bottom of the wells 16 in the embodiment of Fig. 3(c). When a vacuum is drawn in the interior chamber 34, the vacuum is communicated via the orifices 36 to create a negative pressure to hold the bottom of the wells 16 firmly against the top surface of the fixture 32. As a result, even though the tray 12 is formed of a flexible material, the bottom portions of the wells 16 maintain a high precision flatness to facilitate high-resolution printing and reading of the microarrays. The flatness of the well bottom is generally determined by the flatness of the depressions 38 or the top surface of the fixture corresponding to the bottom of the wells. A high degrees of flatness of less than 0.0001-inch variation across the tray may be obtained."

Therefore, in addition to not allowing micromixing capability, Moring fails to provide the high degree of flatness offered by the present invention.

In light of the foregoing, Applicant respectfully submits that Moring could not have anticipated or rendered obvious claim 1, because Moring fails to teach or suggest each and every claim limitation. Claims 2, 4-15, and 19 depend from claim 1 and cannot be anticipated or rendered obvious for at least the same reasons as claim 1. Withdrawal of these rejections is thus respectfully requested.

Claim 22, as amended, is as follows:

An assembly for a microarray assay device, comprising:

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a microplate having a plurality of wells formed of a flexible material and having continuous flat bottoms; and

a vacuum fixture defining a top surface and an interior chamber connectable to a vacuum source, wherein the microplate is mounted on the top surface of the vacuum fixture so that the bottom of each well conforms to the top surface of the vacuum fixture, the vacuum fixture further defining a plurality of orifices connected to the interior chamber and opening at the top surface at locations corresponding to the bottoms of the wells when the microplate is mounted on the top surface of the vacuum fixture, wherein each of the orifices connects directly to both the top surface and the interior chamber, wherein there is no fluid communication between the wells and the orifices.

Claim 22 requires a similar limitation that there is no fluid communication between the wells and the orifices. Therefore, Moring could not have anticipated or rendered obvious claim 22 for the same reasons discussed above. Claims 31 and 32 depend from claim 22 and cannot be anticipated or rendered obvious for at least the same reasons as claim 22. Withdrawal of these rejections is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103:

Claims 3 and 16-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Moring in view of Mathus et al. (U.S. Patent No. 5,858,309). Applicant respectfully traverses this rejection.

Claims 3 and 16-18 depend from claim 1, and as such include all the limitations of claim 1, and therefore, cannot be rendered obvious over Moring for at least the same reasons discussed above. Mathus cannot remedy the defect of Moring and is not relied upon by the Examiner for such. Instead, the Examiner

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cites Mathus for teaching microplates and methods for manufacturing microplates, and more specifically, for teaching microplates with a material thickness of 7.5 mils. Mathus has no teaching or suggestion of orifices of any kind, much less lack of fluid communication between array formation areas and orifices.

In light of the foregoing, Applicant respectfully submits that Moring and Mathus could not have made claims 3 and 16-18 obvious, because the combination of references fails to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claims 20, 21, 23, and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Moring in view of Mohan et al. (U.S. Patent No. 5,888,830). Applicant respectfully traverses this rejection.

Claims 20-21 and 23-24 depend from amended claims 1 and 22, respectively, and as such include all the limitations of claims 1 and 22, respectively, and therefore, cannot be rendered obvious over Moring for at least the same reasons discussed above. Mohan cannot remedy the defect of Moring and is not relied upon by the Examiner for such. Instead, the Examiner cites Mohan for teaching a capping plate with a plurality of caps that corresponds to an array area and seals the reaction vessel and a cap that has access to an inlet and outlet port and the microplate assembly has a temperature control element. Mohan fails to teach or suggest that there is no fluid communication between array formation areas and orifices. Instead, Mohan teaches a drainage channel block 34 with channels 65 aligned with the male Luer connectors 53 of the valve inserts 51 in the manifold valve block 30 so that when the valve inserts are opened, the liquid therein simultaneously drains into the array of interconnected channels. (Mohan, column 11, line 58-column 12, line 1; Figures 7-9). Thus, Mohan teaches an array of microfiltration wells which are similar to those of Moring.

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In light of the foregoing, Applicant respectfully submits that Moring and Mohan could not have made claims 20, 21, 23, and 24 obvious, because the combination of references fails to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Moring in view of Stylli et al. (U.S. Patent No. 5,858,309). Applicant respectfully traverses this rejection.

Claim 25 depends from claim 22, and as such include all the limitations of claim 22, and therefore, cannot be rendered obvious over Moring, for at least the same reasons discussed above. Stylli cannot remedy the defect of Moring and is not relied upon by the Examiner for such. Instead, the Examiner cites Stylli for the teaching of a peristaltic pump. Stylli has no teaching or suggestion has no teaching or suggestion of orifices of any kind, much less lack of fluid communication between wells and orifices.

In light of the foregoing, Applicant respectfully submits that Moring and Stylli could not have made claim 25 obvious, because the combination of references fails to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Applicant believes the foregoing amendments comply with requirements of form and thus may be admitted under 37 C.F.R. § 1.116(b). In addition, admission is requested under 37 C.F.R. § 1.116(b) as presenting rejected claims in better form for consideration on appeal.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los

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Angeles, California telephone number (310) 789-5108 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,  
HOGAN & HARTSON L.L.P.

Date: June 10, 2005

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